Review

Acute upper gastrointestinal bleeding: state of the art review

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ABSTRACT

Acute upper gastrointestinal bleeding (AUGIB) remains a frequent and life-threatening emergency with mortality rates approaching 9% despite therapeutic advances. This state-of-the-art narrative review synthesises recent evidence (2020–2025) across the continuum of AUGIB care, covering primary prevention, pre-endoscopic, endoscopic and postendoscopic management for non-variceal and variceal subtypes. Updates in pre-endoscopic treatment include restrictive transfusion thresholds, thromboelastography-guided correction of coagulopathy, avoidance of tranexamic acid and quality of care initiatives focused on resuscitative management. Risk stratification has expanded from validated scores such as the Glasgow-Blatchford Score, to newer Horibe/Harbinger and ABC scores, complemented by machine-learning models and telemetric haemoglobin-sensing capsules. Endoscopic technology has benefited from new-generation therapeutic endoscopes and processors offering improved optics (including red dichromatic imaging), complemented by an expanding armamentarium of endoscopic accessories for primary haemostasis, not limited to through-the-scope clips, precision thermal therapies, haemostatic powders, self-assembling hydrogels, cap-mounted clips and suturing techniques for large ulcers. For variceal haemorrhage, evidence supports terlipressin infusion in favour of intermittent administration, re-evaluation of prophylactic antibiotic use and contemporary endoscopic measures such as covered self-expanding metal (Danis) stents, endoscopic ultrasound (EUS)-guided therapy for gastric varices and transvenous obliteration procedures. Postendoscopic care covers acid suppression therapy (including potassium competitive acid blockers), eradication of *Helicobacter pylori*, early nutrition, iron replacement, early resumption of antithrombotic therapy and rebleeding management. Key recommendations from international AUGIB guidelines are summarised and compared, future directions for research discussed and an updated management algorithm based on key advances presented herein. We hope this narrative review will provide clinicians with a summary of the latest literature and evidence-based strategies to inform clinical practice and benefit patient outcomes in AUGIB.

WHAT IS ALREADY KNOWN ON THIS TOPIC

⇒ Despite advances in haemodynamic resuscitation, endoscopy and pharmacotherapy, acute upper gastrointestinal bleeding (AUGIB) remains associated with substantial morbidity and mortality.
⇒ Heterogeneity in patient risk factors, transfusion strategies and timing of endoscopy impacts patient outcomes, even within guideline-driven care.

WHAT THIS STUDY ADDS

⇒ This state-of-the-art review summarises the key advances in published literature relevant to AUGIB between 2020 and 2025.
⇒ Novel triage modalities (artificial intelligence-driven risk prediction, telemetric blood-sensing capsules) and cutting-edge endoscopic interventions (cap-mounted clips, haemostatic topical agents, gels, suturing devices, red dichromatic imaging) are presented herein.
⇒ Data to support amendments to the existing clinical practice, for example, continuous terlipressin infusion, abbreviated antibiotic regimens and potassium-competitive acid blockade, are also presented.

HOW THIS STUDY MIGHT AFFECT RESEARCH, PRACTICE OR POLICY

⇒ Opportunities at both the patient and service levels (pre-endoscopic, endoscopic and postendoscopic care) are presented that can be embraced to improve patient outcomes in AUGIB.

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INTRODUCTION

Acute upper gastrointestinal bleeding (AUGIB) is a common, life-threatening emergency with an incidence of 1 per 1000 patient-years,[1] and a reported UK mortality rate of 8.7%.[2] Despite substantial advances in the past two decades, including enhanced focus on resuscitation, endoscopic techniques, validated risk stratification tools and medical therapies, AUGIB continues to carry significant morbidity and mortality. The introduction of evidence-based clinical guidelines has further standardised practice and improved outcomes.

Since 2020, the management landscape of AUGIB has evolved following expansion of the evidence-based. Advances in endoscopic technology, the development of novel therapeutic accessories and the integration of artificial intelligence (AI)-assisted diagnostics are reshaping clinical pathways. In parallel, guidelines have been updated to improve quality of care, with added emphasis on endoscopist upskilling and training. Nonetheless, AUGIB remains challenging especially in older patients, those on antithrombotics, and in resource-limited settings.

This state-of-the-art narrative review summarises recent developments in non-variceal and variceal AUGIB across pre-endoscopic, endoscopic and post-endoscopic care, highlighting evidence published since 2020 and aligning key recommendations with international guidelines. We aim to provide endoscopists and frontline clinicians with up-to-date, evidence-based strategies for managing AUGIB.

Literature search

For this narrative review, we searched MEDLINE, Embase, the Cochrane Library and Scopus using subject headings and free-text terms ("upper gastrointestinal haemorrhage," "upper gastrointestinal bleeding," "endoscopic haemostasis"). We included English-language publications from 1 January 2020 to 31 January 2025, incorporating guideline recommendations from major societies. Randomised controlled trials (RCT) and systematic reviews were prioritised, followed by observational studies and relevant conference abstracts. Paediatric populations, case reports, editorials and non-English publications were excluded. Comparisons were also made between key recommendations across major AUGIB guidelines. A detailed review on advanced EUS-guided therapies, interventional radiological approaches and surgical measures considered outside the scope of this review.

Mortality trends

In the 2022 UK prospective AUGIB audit (n=5142), overall in-hospital mortality was 8.7% (5.8% in acute admissions and 19.9% inpatients).[2] This represents an improvement from the 2007 national audit (10.0% overall; 7.0% acute admissions; 26.0% inpatients),[3] despite increasing patient comorbidity, anticoagulant use and shifts in aetiology (figure 1). Mortality remains associated with advanced age, comorbidity burden, variceal bleeding and service-level factors including weekend hospital admission.[4]

Prevention of AUGIB

Non-variceal upper gastrointestinal bleeding (NVUGIB) risk rises with multimorbidity and exposure to antithrombotic therapy.[5] Primary prevention of NVUGIB with proton pump inhibitors (PPIs) is recommended for selected high-risk individuals in intensive care units (ICUs)[6] and high-risk patients on antithrombotic therapy. Data from meta-analyses, building on the COGENT trial, support the role of PPI primary prevention in high-risk patients on dual antiplatelet therapy (DAPT),[7] and in those on oral anticoagulant therapy.[8]

Primary prophylaxis for variceal bleeding in decompensated cirrhosis includes the use of non-selective beta blockers (NSBBs) or endoscopic variceal ligation (EVL).[9] In the CAVARLY RCT (N=330) of patients with decompensated Child-Pugh B/C cirrhosis with high-risk varices, combination therapy with carvedilol and EVL reduced variceal bleed risk at 12 months (11.8% vs 33.6% with carvedilol and 25.5% with EVL; HR 0.31 vs carvedilol and 0.37 vs EVL). Mortality at 1 year was 6.3% (combination) versus 20% (carvedilol) versus 14.5% (EVL).[10] Baveno VII and American Association for the Study of Liver Diseases (AASLD) guidelines support NSBB use in cirrhosis with clinically significant portal hypertension.[11 12]

Resuscitation

Haemodynamic instability complicates approximately one in four AUGIB presentations and is associated with a three-to-five-fold increase in both mortality and rebleeding risk. The British Society of Gastroenterology (BSG) AUGIB care bundle emphasises the role of resuscitation and recommends intravenous crystalloid resuscitation with a 500 mL bolus over 15 min in haemodynamically unstable patients.[13] Early critical care referral is recommended for persistent haemodynamic instability to support resuscitative efforts and facilitate endoscopy.[13 14]

Regarding transfusion thresholds, a restrictive transfusion strategy is favoured over a liberal strategy, with a haemoglobin threshold of <70 g/dL (higher for ischaemic heart disease or active exsanguination) showing non-inferiority based on seminal RCTs and a meta-analysis of seven trials,[15–17] and the Villaneuva trial showing lower mortality in patients with peptic ulcer disease and Child-Pugh A/B cirrhosis.[15]

Risk assessment

Initial triage of AUGIB often begins with simple bedside indicators such as haemodynamic parameters, shock index,[18] clinical intuition[19] and delineation into variceal and non-variceal aetiologies. Symptoms alone

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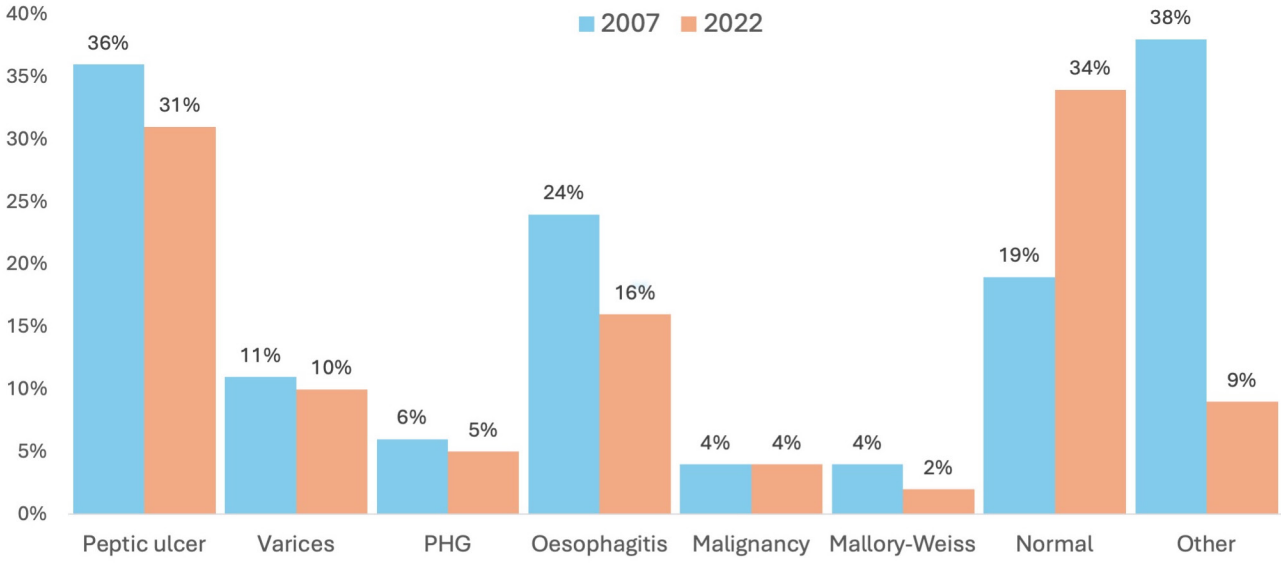

Year of UK AUGIB audit	2007	2022
No of patients	6750	5142
Median age (years)	68	68
Antithrombotics (%)	28 (mainly aspirin)	31 (including DOACs)
Rebleeding Rate (%)	13	Not specified
Mortality Rate (%)	10	8.7
Mortality Rate (Admissions) (%)	7	5.8
Mortality Rate (Inpatients) (%)	26	19.9

Figure 1 Comparison of endoscopic diagnoses of patients receiving endoscopy for acute upper gastrointestinal bleeding (AUGIB) in 2007 versus 2022, with summary of patient characteristics and outcomes.[2 3] DOAC: direct oral anticoagulant; PHG, portal hypertensive gastropathy.

may provide clues; a UK National Endoscopy Database study demonstrated that the combination of haematemesis and melaena tripled the likelihood of requiring endoscopic therapy compared with either symptom alone.[20] However, such approaches are insufficient in isolated and should be supplemented with validated risk scores to improve prognostication and guide management decisions.

Risk scores

The Glasgow-Blatchford Score (GBS) is recommended at presentation within international guidelines;[13 21 22] a score of 0–1 reliably predicts low rates of endoscopic intervention or mortality, thereby allowing safe outpatient management.[13 22] The ABC (Age, Blood tests and Comorbidity) score has shown good prediction of 30-day mortality (low: 1%, medium 7%, high 25%) and is applicable to both upper and lower GI bleeding.[23 24] The Horibe/Harbinger score incorporating PPI use, shock index and urea:creatinine ratio has shown superior discrimination for mortality compared with GBS and AIMS65.[25] By contrast, shock index was inferior to GBS and ABC and is not recommended as standalone in AUGIB (table 1).[18]

Artificial intelligence

Machine learning models are emerging as powerful adjuncts to conventional scores, allowing analysis of complex, heterogeneous datasets that can improve with experience, for example, using the SHapley Additive exPlanations method to identify unusual covariates. In a large retrospective study (n=1021), CatBoost and XGBoost models were superior to GBS for predicting mortality (area under the receiver operating curve (AUROC) 0.84 vs 0.68 for GBS).[26] ICU-based datasets have reported AUROCs >0.98 for predicting low-risk patients for both variceal and non-variceal bleeding.[27] Convolutional neural networks are being trained to recognise bleeding stigmata and lesion types during endoscopy, with diagnostic accuracy comparable to junior endoscopists.[28] A systematic review of 14 observational studies found machine learning

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Table 1 Summary of risk assessment scores

Scoring system	Components	Strengths	Weaknesses
Glasgow Blatchford Score (GBS)	Blood urea nitrogen, haemoglobin, systolic BP, pulse, melena, syncope, hepatic disease, cardiac failure	High sensitivity for identifying low-risk patients, does not require endoscopy	Lower specificity can over-triage patients for admission
AIMS65	Albumin level, INR, mental status, systolic BP, age	Easy to calculate, predicts mortality well, does not require endoscopy	Limited to predicting mortality, not rebleeding or intervention needs
ABC	Age, blood tests (haemoglobin, albumin, INR), comorbidities (including malignancy)	High predictive accuracy for 30-day mortality, easy to use	Not yet widely validated, requires further research
Full Rockall	Age, shock (systolic BP, pulse), comorbidity, diagnosis, major stigmata of recent haemorrhage	Well-validated, predicts mortality and rebleeding risk post-endoscopy	Requires endoscopy, complex calculation
Progretto Nazionale Emorragia Digestiva (PNED)	Age, comorbidities, performance status, time to endoscopy, haemoglobin, rebleeding, surgery, in-hospital complications	Incorporates comprehensive patient data, validated in Italy	Lower specificity, can over-triage patients for admission
Horibe	Age, comorbidities, shock index, endoscopic findings	Predicts rebleeding and mortality, incorporates endoscopic findings	Requires endoscopy, less commonly used internationally

ABC, Age, Blood tests and Comorbidity; BP, blood pressure; INR, international normalised ratio.

models incorporating 4–50 clinical and laboratory variables effectively predicted mortality (2%–20%), rebleeding (11%–21%) and need for intervention (12%–76%).[29] A subsequent validation study showed that XGBoost outperformed Rockall, AIMS65 and GBS for predicting intervention or death within 30 days (AUC 0.90 vs 0.64–0.87), raising the possibility of identifying low-risk patients suitable for outpatient management.[30] Despite these promising results, machine learning models require external validation and informatics infrastructure.

Telemetric capsules

Swallowable sensor capsules (HemoPill(Ovesco) and PillSense(EnteraSense)) apply spectrophotometry to detect >20 mL of blood in the gastrointestinal tract, offering value when AUGIB is suspected but uncertain (eg, coffee-ground vomiting) or when urgent endoscopy is contraindicated (eg, frailty, COVID-19). Both devices offer a window display that can indicate quantity of blood detection by time of capsule passage. HemoPill triage can avoid emergency endoscopy rates in up to 72% and guide timing of intervention.[31] PillSense data (N=126) demonstrated high sensitivity (92.9%), specificity (90.6%) and a negative predictive value of 97.8%.[32] The second-generation HemoPill offers a battery life of 9 hours and has the potential to localise bleeding to middle and even lower sections of the gastrointestinal tract.[33] However, these benefits are counterbalanced by the theoretical risk of capsule retention and need for cost-effectiveness validation.

Rx (treatments)

Managing coagulopathy

Coagulopathy and thrombocytopenia in cirrhosis do not directly predict rebleeding risk and should, therefore, be corrected on a case-by-case basis.[11] Fresh frozen plasma (FFP), used for the correction of INR, was found to reduce thrombin generation in 34% of patients.[34] Point-of-care viscoelastic assays, such as thromboelastography (TEG) and rotational thromboelastometry, assess clot dynamics by measuring changes in blood viscosity as a clot forms around a rotating pin. TEG-guided management of coagulopathy has shown promise in AUGIB, with randomised trials reporting reductions in blood product use, fewer pulmonary complications and similar bleeding outcomes compared with conventional transfusion strategies.[35] These tools are increasingly used in UK and European ICUs, but their wider use is limited by availability and cost, and complexity of interpreting results.

Antithrombotics and antiplatelets

Management of antiplatelet and anticoagulant therapy during AUGIB is addressed in the BSG, European Society of Gastrointestinal Endoscopy (ESGE)and American College of Gastroenterology and Canadian Association of Gastroenterologists (ACG-CAG) guidelines (figure 2).

Aspirin/P2Y12 inhibitors

In non-variceal AUGIB, aspirin should be continued when prescribed for secondary cardiovascular prevention.[21 36] During DAPT, guidelines recommend continuing aspirin and temporarily withholding the P2Y12 inhibitor if thrombotic risk is not high, with resumption within 5 days of haemostasis in consultation with cardiology (low certainty based on expert opinion, conditional recommendation).[37] In variceal bleeding, ESGE advises withholding antiplatelets initially and balancing rebleeding risk against thrombotic risk before resumption.[9]

Warfarin

For patients presenting with AUGIB on warfarin, ESGE and ACG-CAG recommend reversal with low-dose vitamin K in combination with intravenous prothrombin complex concentrate (PCC) in haemodynamically unstable patients. FFP should only be used if PCC is unavailable.[21 36]

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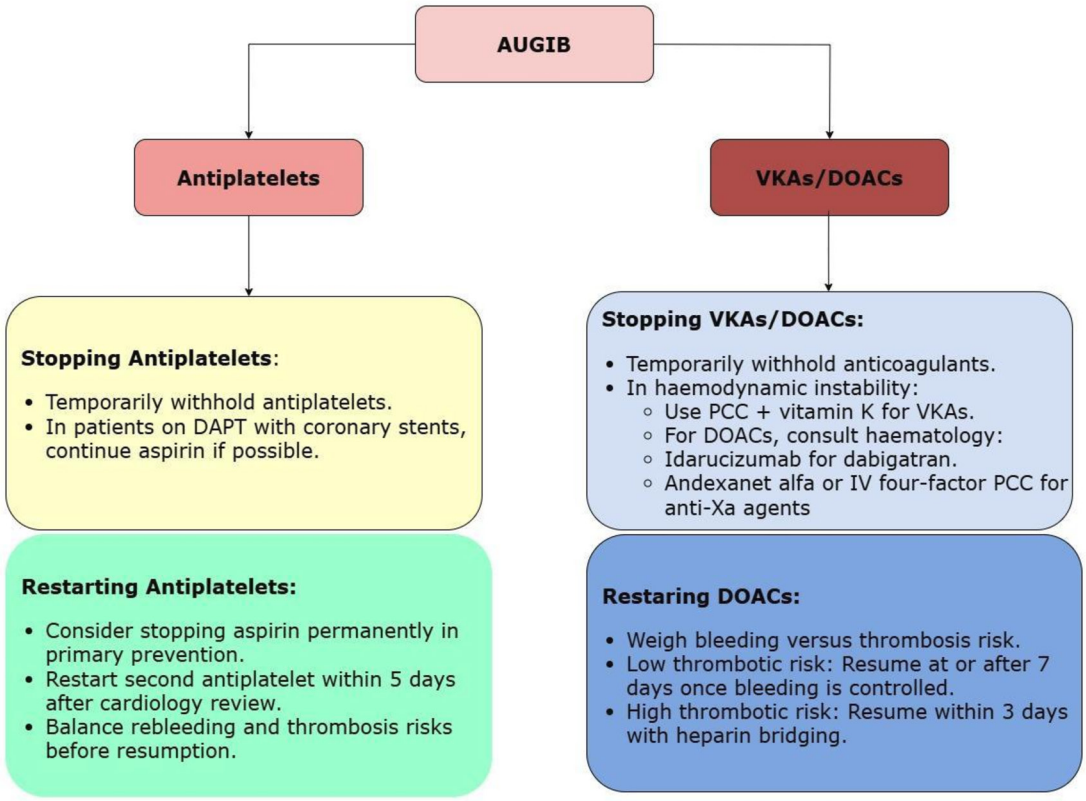
AUGIB
Antiplatelets
VKAs/DOACs
Stopping Antiplatelets:
• Temporarily withhold antiplatelets.
• In patients on DAPT with coronary stents, continue aspirin if possible.
Stopping VKAs/DOACs:
• Temporarily withhold anticoagulants.
• In haemodynamic instability:
◦ Use PCC + vitamin K for VKAs.
◦ For DOACs, consult haematology:
◦ Idarucizumab for dabigatran.
◦ Andexanet alfa or IV four-factor PCC for anti-Xa agents
Restarting Antiplatelets:
• Consider stopping aspirin permanently in primary prevention.
• Restart second antiplatelet within 5 days after cardiology review.
• Balance rebleeding and thrombosis risks before resumption.
Restaring DOACs:
• Weigh bleeding versus thrombosis risk.
• Low thrombotic risk: Resume at or after 7 days once bleeding is controlled.
• High thrombotic risk: Resume within 3 days with heparin bridging.

Figure 2 Management of anti-thrombotics in acute upper gastrointestinal bleed.[2 3] AUGIB, acute upper gastrointestinal bleeding; DAPT, dual antiplatelet therapy; DOAC, direct oral anticoagulant; PCC, prothrombin complex concentrate; VKA, vitamin K antagonist.

Direct-acting oral anticoagulants

There is discordance in guidelines on direct-acting oral anticoagulants (DOAC) reversal. ESGE supports the selective use of specific reversal agents in life-threatening AUGIB: idarucizumab for dabigatran, and andexanet alfa for apixaban, rivaroxaban or edoxaban.[21] The evidence comes largely from the ANNEXA-4 trial (N=109 with severe GI bleeding), which showed that andexanet alfa reduced anti-factor Xa activity and achieved haemostasis in 82% of patients, although with a 10% incidence of thrombotic complications. By contrast, ACG-CAG guidelines do not recommend routine use of these reversal agents, citing limited RCT data and low-certainty evidence.

Tranexamic acid

The HALT-IT trial (N=12 009; 89% AUGIB) demonstrated that tranexamic acid (TXA) conferred no mortality benefit but increased venous thromboembolism risk (0.8% vs 0.4%), though the trial included both upper and lower GI bleeds.[38] Negative results were found in another smaller trial.[39] An RCT in patients with Child-Pugh B/C cirrhosis and AUGIB found that TXA reduced bleeding rates at day 5 (6.3% vs 13.3%) and 6 weeks (12% vs 21.3%) but did not affect 6-week mortality.[40] Overall, TXA is not recommended in AUGIB (strong recommendation, high-certainty evidence).[21]

Prokinetics

Pre-endoscopic prokinetics such as erythromycin and metoclopramide can improve mucosal visualisation and reduce the need for repeat endoscopy. Intravenous erythromycin (250 mg administered 30–120 mins prior) is the most extensively studied across several RCTs (N≈350) showing improved visualisation, fewer repeat scopes and reduced transfusion requirements.[41] This has led to endorsements from ESGE, Baveno VII and ACG guidelines, particularly in suspected variceal bleeding (conditional, moderate-certainty evidence).[9 11 22] A more recent RCT (n=284) demonstrated that intravenous metoclopramide also enhanced gastric emptying and reduced repeat endoscopy, although supporting evidence remains limited.[42] Both agents carry a risk of cardiac arrhythmias (long QT syndrome); therefore, baseline electrocardiography is recommended to exclude predisposing rhythm abnormalities prior to use.

Proton pump inhibitors

Pre-endoscopy PPI may reduce haemorrhagic stigmata but has no impact on mortality or rebleeding.[43] Despite this, intravenous PPI (80 mg bolus followed by 8 mg/hour infusion or intermittent high dose bolus) is commonly used before endoscopic therapy.[44 45] International guidelines are split: ESGE tentatively

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supports it (conditional, low-certainty) while ACG is neutral.[21 22]

Variceal measures

Vasoactive agents (eg, terlipressin, somatostatin) and intravenous antibiotics are standards of care in the management of suspected variceal bleeding. Although few recent trials exist, earlier RCTs and meta-analyses support their efficacy, and all major guidelines (ESGE, Baveno VII, AASLD, ACG, BSG) strongly endorse early use.[9 11–13 22] A recent RCT demonstrated that a 48-hour course of terlipressin and ceftriaxone was non-inferior to 5 days of therapy following haemostasis, suggesting shorter treatment durations may be appropriate in selected patients.[46] For terlipressin, continuous infusion may be superior to bolus administration in patients with portal hypertensive bleeding.[47] In a meta-analysis of 5 RCTs (N=395), continuous terlipressin group had a significantly lower risk of rebleeding (RR=0.43, p=0.0004) and treatment failure (RR=0.22, p=0.02) and fewer total adverse effects (RR=0.52, p<0.001).

In a meta-analysis of 26 studies of patients with Child-Pugh A/B cirrhosis, use of antibiotics (particularly quinolones +/− beta-lactams) was associated with reduced mortality (RR: 0.691, 95% CI 0.518 to 0.923) and rebleeding (RR: 0.577, 95% CI 0.433 to 0.767).[48] The antibiotic paradigm has been challenged in a Bayesian meta-analysis, which found high risk of non-inferiority with short course or no antibiotics on mortality and rebleeding, with authors cautioning the level of evidence supporting antibiotic use in cirrhosis.[49]

TIMING OF ENDOSCOPY

Endoscopy within 12–24 hours of stabilisation is universally recommended for AUGIB (table 2).[21] The Joint Advisory Group Global recommends early endoscopy in ≥75% of AUGIB cases, but only 59% of patients and 20% of UK units meet this target.[50] A landmark RCT (N=516, GBS≥12) found no mortality benefit with urgent (<6 hour) versus early (6–24 hour) endoscopy (6.6% vs 8.9%; HR 1.35, 95% CI 0.72 to 2.54).[51] It is important to note that these studies exclude patients with ongoing haemodynamic instability, which require emergent endoscopy. Similarly, a retrospective study reported better outcomes with endoscopy performed between 6 and 24 hour.[52]

For acute variceal bleeding, the ESGE and AASLD recommend endoscopy within 12 hours after presentation with variceal bleeding,[9 12] whereas the BSG recommends endoscopy within 24 hours.[53] The supporting rationale was based on a meta-analysis linked early endoscopy to lower mortality (OR 0.56), but short-term mortality results were inconclusive.[54] Another meta-analysis (N=1307, five studies) found no difference in mortality or rebleeding between urgent (≤12 hours) and non-urgent (>12 hours) endoscopy.[55] More recently, a cohort study from China (N=3319 with cirrhotic variceal bleeding) found higher mortality in patients undergoing endoscopy <12 hours versus 12–24 hour (2.2% vs 0.5%).[56]

Endotracheal intubation

Routine prophylactic intubation is not recommended in acute variceal bleeding. AASLD, ESGE and Baveno VII guidelines advise intubation only for patients with encephalopathy, massive haematemesis or poor airway protection. These conditional recommendations, based on low-quality evidence, note routine intubation may worsen outcomes such as pneumonia, longer ICU stays and higher mortality.[9 12 57]

ENDOSCOPIC THERAPY

General principles

Consider using a therapeutic gastroscope (large single channel or double channel) to augment fluid/clot suction, using a water pump, simethicone and carbon dioxide. A distal attachment cap and underwater technique can aid visualisation and therapy.[58 59] The patient's position change from left lateral to left semirecumbent position can displace fundal clots and improve fundal visualisation.[60] A side-viewing duodenoscope should be considered for lesions with difficult access, eg, peri-ampullary, posterior duodenal bulb and gastric lesser curve lesions.[45] Endoscopic accessories should be prepared, spanning injectable, thermal, clip and topical therapies (figure 3).

Red dichromatic imaging

Red dichromatic imaging (RDI) is an optical enhancement technique which emits green, amber and red light available with Olympus EVIS-X1 processors. In acute bleeding, RDI improves contrast between concentrated and diluted blood, enhancing bleeding site visualisation and treatment.[61]

Doppler probe endoscopy

A meta-analysis (N=308) found Doppler probe endoscopy (DPE)-positive lesions have higher rebleeding risk (OR 6.54 and 25.96). DPE-guided management lowers rebleeding (OR 0.27) but not mortality.[62] However, due to the lack of robust evidence, its routine use in managing NVUGIB is not recommended.[21]

ENDOSCOPIC MANAGEMENT OF NVUGIB

Endoscopic therapies

Combination therapy is superior to monotherapy for peptic ulcer bleeding, improving haemostatic efficacy and reducing rebleeding rates. Epinephrine injection should therefore be used only as an adjunct, followed by a definitive modality. Thermal contact therapies (eg, heater probe, bipolar coagulation such as gold probe or coagulation forceps) and mechanical methods (eg, haemoclips) are recommended as first-line definitive options for high-risk ulcers (Forrest Ia–IIb). In

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Table 2 Comparison between ACG, ESGE and UK guidelines.

Guidelines	ACG	ESGE	UK
Risk stratification	GBS	GBS	GBS
Red cell transfusion	Restrictive transfusion strategy threshold Hb<7 g/dL.	Restrictive transfusion strategy threshold Hb<7 g/dL Hb 7–9 g/dL without cardiovascular disease. More liberal transfusion Hb≥10 with CV disease.	Restrictive (Hb<7 g/dL); target: 7–10 g/dL). A higher trigger should be considered in patients with ischaemic heart disease.
Antithrombotics	Platelet transfusion not recommended as a reversal agent for antiplatelets Aspirin (as secondary prophylaxis) should not be interrupted.	Platelet transfusion not recommended as a reversal agent for antiplatelets. Aspirin (as secondary prophylaxis) should not be interrupted and if done, should be re-started 3–5 days after controlling the bleed. No tranexamic acid.	Platelet transfusion not recommended as a reversal agent for antiplatelets Aspirin (as secondary prophylaxis) should not be interrupted.
Anticoagulants	Prothrombin concentrate (PCC) can be given to reverse Warfarin effect No to vitamin K, andexanet alfa or idarucizumab.*	Vitamin K and fresh frozen plasma (FFP) can be given if PCC is not available In severe ongoing bleeding, using a DOAC reversal agent or intravenous PCC should be considered.*	PCC preferred; Vitamin K and FFP if PCC is not available. In life-threatening haemorrhage, idarucizumab can be used as an antidote for dabigatran and andexanet for Apixaban and Rivaroxaban.*
Use of prokinetics	IV erythromycin is recommended*	IV erythromycin in selected cases of ongoing large UGIB.*	IV erythromycin be considered*
Antisecretory therapy	No consensus was reached*	Can be given to downstage the bleeding stigmata before endoscopy.* Airway protection only in selected cases (agitation, restlessness, etc) before endoscopy. Somatostatin analogue is not recommended. Nasogastric tube is not recommended.	PPIs not recommended prior to endoscopy*
Timing of endoscopy	Within 24 hours of AUGIB	Early endoscopy between 12–24 hours after resuscitation. Antithrombotics, anticoagulants or INR should not determine the timing of endoscopy.	Within 24 hours; earlier if high-risk stigmata present.
Endoscopic therapy	A proficient endoscopist along with a trained nursing team IA, IB and IIA treated with endotherapy IIB—no consensus was reached. Epinephrine not as monotherapy but as part of multimodal therapy. Over-the-scope clips are recommended. Haemospray suggested.	Proficient endoscopist along with a trained nursing team. IA, IB and IIA treated with endotherapy IIB—clot should be removed and the underlying ulcer exposed and treated accordingly FIII—not treated. Doppler probe should not be used routinely. Epinephrine not as monotherapy but as part of multimodal therapy. Over-the-scope clips and Haemospray used in case of persistent bleeding despite endotherapy. Trans-arterial embolisation is tried, followed by surgery if does not work.	
Postendoscopic management	High-dose PPI, either continuous or intermittent, for 72 hours. A re-endoscopy attempt for rebleeding and if it fails, surgery or transcatheter embolisation.	High-dose PPI infusion or intermittent I/V boluses for 72 hours In case of rebleeding, second-look endoscopy and, if that fails, transcatheter embolisation followed by surgery. Test for treatment for *H Pylori* and retest after treatment PPI co-therapy with DAPT Anticoagulants and DOACs should be restarted as soon as possible after controlling bleeding after a week with PPI cotherapy.	High-dose PPI either continuous or intermittent, for 72 hours. Re-endoscopy if rebleeding. TAE if failed re-endoscopy.

*reflects differences between guidelines.
ACG, American College of Gastroenterology; AUGIB, acute upper gastrointestinal bleeding; DOAC, direct oral anticoagulant; ESGE, European Society of Gastrointestinal Endoscopy; GBS, Glasgow-Blatchford Score; Hb, haemoglobin; INR, international normalised ratio; PCC, prothrombin complex concentrate; PPI, proton pump inhibitor; TAE, transcatheter arterial embolisation; TAE, transcatheter arterial embolisation.

contrast, non-contact methods such as argon plasma coagulation are particularly suited to treating vascular lesions, including angiodysplasia and arteriovenous malformations, where they provide safe and effective ablation.

Topical haemostatic powders

Haemostatic powders are straightforward to apply and may be used in NVUGIB and tumour-related bleeding.[63–66] Although not recommended for primary haemostasis,[21 22] growing RCT evidence supports their role as primary monotherapy.[67] Hemospray (Cook Medical) is an inorganic powder consisting of sodium bentonite, which absorbs moisture and forms a mechanical barrier to promote clot stability. The largest RCT to date (N=224) in NVUGIB found non-inferiority versus standard treatment for control of bleeding within 30 days (90.1% vs 81.4%), failure of haemostasis (2.7% vs 9.7%), 30-day rebleeding (8.1%

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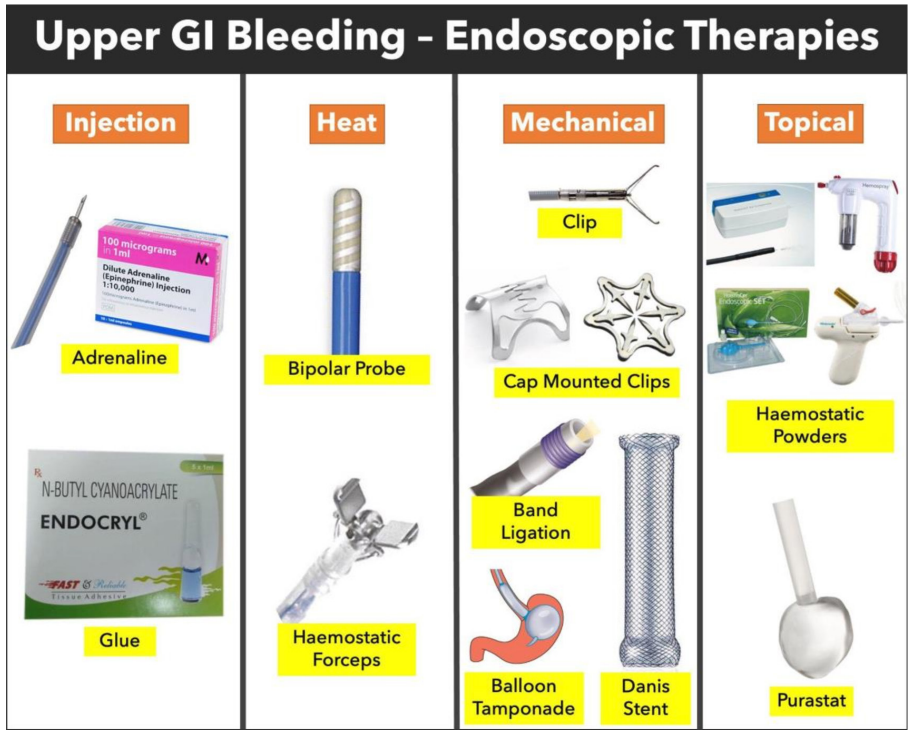

Figure 3 Summary of endoscopic therapies for AUGIB. AUGIB, acute upper gastrointestinal bleeding.

vs 8.8%) and mortality (12.6% vs 12.4%).[68] A recognised limitation is catheter clogging on moisture exposure; this can be mitigated by sealing the catheter with bone wax and using a three-way stopcock to purge prior to application.[69] Second-generation powders, such as EndoClot and Nexpowder, are delivered via battery-powered devices to reduce clogging. These agents form hydrogels on contact with blood, with reported haemostasis rates of 96.4% and rebleeding rates of 3.7%.[22 66 70 71] CEGP-003 (hydroxyethylcellulose+epidermal growth factor) showed similar haemostasis to epinephrine (100% vs 89.2%) but higher rebleeding (8.6% vs 2.7%, p=0.35), requiring monitoring.[72] ACG and ESGE guidelines recommend topical haemostatic powders as rescue or bridge therapy when conventional modalities are not feasible (low-certainty evidence, conditional recommendation).[21 22]

Topical gels

PuraStat (3-D Matrix) is a fully synthetic self-assembling peptide that forms a transparent hydrogel barrier on contact with blood or moisture, thereby sealing the bleeding site and promoting haemostasis. A recent meta-analysis reported an overall haemostatic success rate of 93.1% with a rebleeding rate of 8.9%.[73] In an observational study of 77 patients with refractory bleeding, including 50 cases following endoscopic intervention, PuraStat achieved 90.9% haemostasis.[74] A prospective multicentre cohort of 111 patients with NVUGIB found haemostasis rates of 94% when used as primary therapy and 75% as rescue therapy, with a 30-day rebleeding rate of 16%.[75] PuraStat appears effective as either a primary or adjunctive therapy in AUGIB, particularly in difficult-to-treat or refractory cases.

Cap-mounted clips

Cap-mounted clips such as the over-the-scope clip (OTSC; Ovesco) and Padlock (Steris) are available for high-risk bleeding ulcers or as salvage therapy after standard treatment failure. A meta-analysis of five RCTs (N=7211) found superior outcomes with OTSC over standard care in severe NVUGIB with lower rates of 30-day rebleeding (RR: 0.44, 95% CI 0.32 to 0.61), 7-day rebleeding (RR: 0.50, 95% CI 0.35 to 0.71) and 30-day mortality (RR: 0.47, 95% CI 0.33 to 0.67).[76] OTSC may also shorten procedure time by an average of 6.6 min.[77] One RCT (n=100) found no 30-day rebleeding benefit when OTSCs were used as primary therapy[78] and suggested reserving their role for standard treatment failure.

OTSC clip type may influence outcomes; atraumatic OTSCs were associated with lower rebleeding (7.6% vs 34.9%) and transfusion requirements (2.5 vs 5.1 units) compared with traumatic clips.[77] Important limitations to cap mounted therapy include availability, cost, and maldeployment complications that may hinder endoscopic therapy. Newer iterations of the OTSC (i.e. OTSC neo) have been released to facilitate deployment. Current guidelines differ with regard to positioning of therapy: the ESGE recommends cap-mounted clips as first line for actively bleeding ulcers (Forrest Ia/Ib) >2 cm with vessels >2 mm or in fibrotic/high-risk sites,[21] whereas ACG suggests

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OTSCs as rescue therapy for rebleeding (conditional recommendation, low-certainty evidence).[22] In light of accumulating RCT data, it is possible that international guidelines may be updated in future to support primary cap mounted clip therapy for broader indications, although cost-effectiveness analyses for such an approach are warranted.

Haemostatic forceps

Monopolar haemostatic forceps with low-voltage coagulation can be an effective alternative to other mechanical and thermal treatments for NVUGIB, particularly for ulcers in difficult locations or those with a rigid and fibrotic base.[45] One RCT (N=112 with Forrest 1a-2b peptic ulcer bleeding) reported superior rates of haemostasis (98.2% vs 80.4%, p=0.004), procedure time (302s vs 568s) and rebleeding rates (3.6% vs 17.7%, p=0.04) over standard haemoclip treatment.[79] An RCT comparing bipolar electrocoagulation in high-risk peptic ulcers found that a 3:1 peripheral-to-central approach (triangulated thermocoagulation of the ulcer base adjacent to the bleeding lesion) was superior to directed therapy on the bleeding bleeding lesion, with significantly higher rates of successful initial haemostasis.[80]

Endoscopic suturing

Endoscopic suturing has emerged as a potential option for managing large bleeding ulcers, particularly those at risk of perforation or refractory to conventional haemostasis. One prospective study from China described the purse-string suture approach for primary treatment of peptic ulcers >1 cm. Epinephrine is injected in the ulcer base and 4–6 endoscopic clips placed circumferentially around the ulcer. A nylon loop ligation device (similar to Endoloop) is placed at the base of the clips and cinched to compress and close the ulcer base. This approach achieved haemostasis in 89.5%.[78] This approach has also been shown to achieve clinical success in endoscopic refractory NVUGIB treatment, with clinical success of 81.2%[81] and may be a helpful option in resource-constrained settings lacking access to OTSC and topical agents. Dedicated over the scope suturing devices, for example, Apollo OverStitch, has been used for successful ulcer closure where endotherapy has failed.[82] It should be noted that these are unlicensed indications lacking RCT data and require technical expertise and can be challenging where field of access is limited.

Variceal bleeding

Injectable therapies

Endoscopic band ligation is established first-line therapy for oesophageal variceal bleeding,[9] whereas for gastric varices, especially cardiofundal, cyanoacrylate injection is strongly recommended, with thrombin as an acceptable alternative.[53] One RCT (N=68) showed similar rates of haemostasis and rebleeding for thrombin and cyanoacrylate, although cyanoacrylate had more complications.[83] A retrospective study (2011–2019) also found thrombin effective across gastric, oesophageal and ectopic variceal bleeding.[84]

Topical therapies (haemostatic powder)

There is RCT data supporting the role of Hemospray pretreatment prior to conventional endoscopic therapy for bleeding oesophagogastric varices,[85] showing improved rates of immediate haemostasis, reduced rebleeding and lower 6-week mortality (7% vs 30%, p=0.006) compared with standard therapy. However, in the intervention arm, patients underwent endoscopy and Hemospray application within 2 hours and further endoscopic variceal therapy within 12–24 hours, which limits feasibility. ESGE recommends considering the use of haemostatic powder as a bridge to definitive therapy and may allow for early patient stabilisation when expertise in endoscopic haemostasis for variceal bleeding is unavailable.[85]

Tamponade therapies

Balloon tamponade (eg, Sengstaken-Blakemore tube (SBT), Linton, Minnesota tubes) is conventionally used for refractory variceal bleeding and serves as a bridge to definitive therapy, for example, transjugular intrahepatic portosystemic shunt (TIPS). These require either orogastric or nasogastric tube traction, usually in an ICU environment. More recently, the Danis stent (SX-ELLA, ELLA-CS) is a fully covered self-expanding metal stent that is licensed as a more effective alternative for refractory oesophageal variceal bleeding. Inserted per-orally without fluoroscopy, it compresses oesophageal varices to achieve haemostasis. The pilot RCT (N=28) found higher clinical success (66% vs 20%) and bleeding control (85% vs 47%) with no mortality difference compared with Sengstaken-Blakemore tube.[86] Unlike SBT, it allows enteral access and avoids intubation. An Australian study (N=30) reported 97% immediate haemostasis, 9.4% rebleeding, 6.3% migration and 23.3% mortality.[87] Danis stents are licensed for implantation for 7 days and are indicated as a bridge to definitive treatment.

EUS-guided interventions

Although outside the primary scope of this review, EUS has a role for gastric variceal treatment and may be superior to direct endoscopic glue injection.[88] Based on RCT data, EUS-guided delivery of embolisation coils plus cyanoacrylate appears to be superior for variceal obliteration compared with either therapy alone.[89 90] The American Gastroenterological Association (AGA) practice guidelines on interventional EUS endorses EUS-guided coil and cyanoacrylate therapy for varices.[91]

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Postendoscopic management

Resumption of feeding

Early oral/enteral feeding (<24 hours) is safe after successful endoscopic haemostasis for AUGIB.[92] A meta-analysis of 10 RCTs (N=1051) found no difference in rebleeding or mortality with early feeding (<24 hours), with a clinically relevant reduction in length of stay (mean difference −1.22 days).[92] In an open-label RCT, early nasogastric tube feeding within 1 hour of variceal endotherapy was safe and well tolerated without the additional risk of rebleeding or encephalopathy.[93] Prolonged nil by mouth states should be avoided due to the risk of malnutrition in AUGIB, especially in cirrhotic patients with variceal bleeding.[11]

Acid suppression PPIs/vonoprazan

High-dose PPI is recommended for high-risk peptic ulcers (Forrest Ia-IIb) (table 2). The seminal Hong Kong RCT showed that continuous high-dose omeprazole infusion (80 mg intravenous bolus, followed by 8 mg/hour for 72 hours) significantly reduced rebleeding, transfusion and surgery[94] and forms the evidence within NVUGIB guidelines.[13 21 22] Subsequent trials and meta-analyses have found intermittent dosing (intravenous bolus or oral regimens) to be non-inferior to continuous infusion in prevention of rebleeding and mortality,[95 96] providing greater flexibility and lower cost.

More recently, potassium-competitive acid blockers (PCABs) such as vonoprazan have emerged as an alternative to PPIs. Unlike PPIs, vonoprazan directly inhibits the gastric H+/K+-ATPase independently of luminal pH, producing rapid and prolonged acid suppression. Clinical trials have shown vonoprazan to be non-inferior to PPIs for the treatment of erosive oesophagitis, duodenal ulcer healing and *H. pylori* eradication.[97] Vonoprazan is non-inferior to PPIs in preventing upper GI bleeding in high-risk peptic ulcers and patients on antithrombotic and antiplatelet therapy.[98 99] Its faster and more consistent acid suppression profile provides theoretical advantages, although global experience outside Asia remains limited.

For variceal haemorrhage, a small retrospective study suggested that PPIs reduce early rebleeding after EVL in cirrhotic patients.[100] However, both Baveno VII and ESGE guidelines do not recommend routine PPI use in variceal haemorrhage or for postbanding ulcer prophylaxis.[9 11]

Helicobacter pylori eradication

H. pylori is a key risk factor for peptic ulcer rebleeding, with higher prevalence in duodenal (67%) than gastric ulcers (49%).[101] All patients with ulcer bleeding should be tested and treated if positive, as eradication significantly reduces the rebleeding risk (strong recommendation, high-certainty evidence) although test accuracy may vary in acute NVUGIB.[102 103] The Maastricht VI/Florence Consensus recommends a 14-day regimen tailored to local resistance patterns; in areas with high or unknown clarithromycin resistance (≥15%), bismuth quadruple therapy or non-bismuth concomitant therapy are preferred first-line options.[104] More recently, dual therapy H. pylori eradication with PCABs (eg, amoxicillin plus vonoprazan) has been suggested as a first-line option for treatment-naive patients in ACG guidelines (conditional recommendation; moderate quality evidence).[105] Patients with peptic ulcer bleeding should be tested for H pylori and treated if positive; the previous practice of empirical eradication is no longer recommended.

Iron replacement

Anaemia is common following AUGIB. Iron replacement therapy accelerates haemoglobin recovery compared with no therapy, and intravenous iron may be more effective than oral supplementation.[106] In a single-centre RCT of patients with cirrhosis and variceal bleeding, intravenous iron resulted in a greater rise in haemoglobin (36.5 vs 11.0 g/L) and more frequent anaemia correction (50% vs 21.9%) compared with oral iron.[107] Similar findings have been reported in non-variceal AUGIB cohorts.[106]

Antithrombotic resumption

In patients with high thrombotic risk, antithrombotic interruption following AUGIB increases the risk of thrombotic complications and mortality by up to 10-fold.[108] BSG guidelines suggest minimising interruptions to aspirin use and resuming antithrombotic therapy within 7 days after successful haemostasis in patients at low thrombotic risk and earlier (≤3 days) with bridging low-dose heparin or aspirin in those at high thrombotic risk (conditional recommendation, moderate-certainty evidence).[37] For anticoagulants, observational data highlight differences between drug classes, for example, higher rates of GI bleeding with rivaroxaban compared with apixaban and dabigatran.[11 109] Resuming antiplatelets and anticoagulants should be individualised, balancing rebleeding risk against thrombosis risk (figure 2). Antithrombotic resumption has become a key intervention critical to patient outcomes in AUGIB and where relevant, patients on antithrombotics should have an 'antithrombotic plan' following AUGIB endoscopy.[13]

Endoscopic follow-up

Endoscopic follow-up is recommended for non-variceal AUGIB with poor initial views or gastric ulcers. Early second-look endoscopy after EVL reduces rebleeding (4.8% vs 13.5%) and mortality (0% vs 4.8%), particularly in high-risk patients

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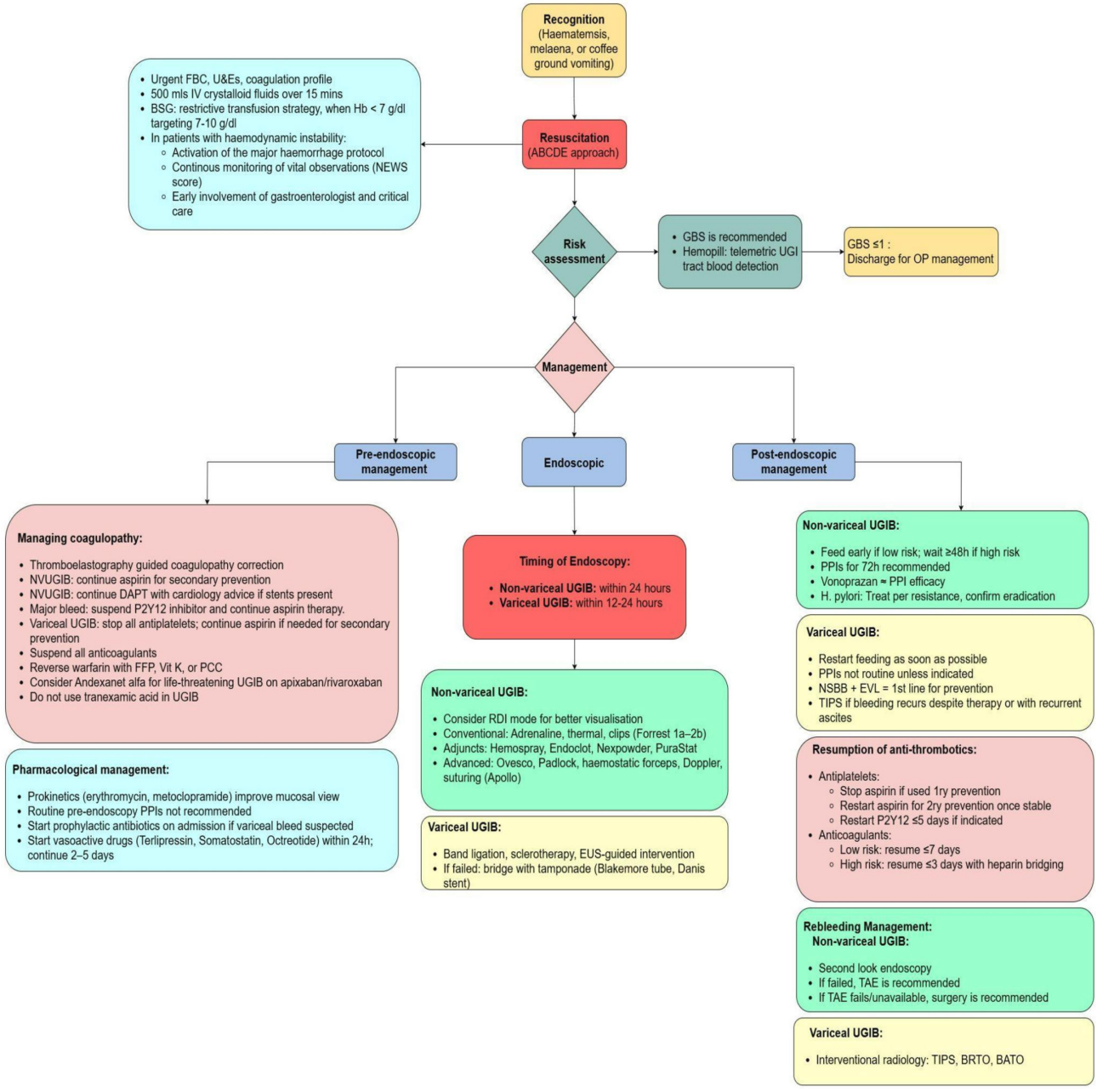
Recognition
(Haematemsis, melaena, or coffee ground vomiting)
Resuscitation
(ABCDE approach)
• Urgent FBC, U&Es, coagulation profile
• 500 mls IV crystalloid fluids over 15 mins
• BSG: restrictive transfusion strategy, when Hb < 7 g/dl targeting 7-10 g/dl
• In patients with haemodynamic instability:
◦ Activation of the major haemorrhage protocol
◦ Continous monitoring of vital observations (NEWS score)
◦ Early involvement of gastroenterologist and critical care
Risk assessment
• GBS is recommended
• Hemopill: telemetric UGI tract blood detection
GBS ≤1 :
Discharge for OP management
Management
Pre-endoscopic management
Endoscopic
Post-endoscopic management
Managing coagulopathy:
• Thromboelastography guided coagulopathy correction
• NVUGIB: continue aspirin for secondary prevention
• NVUGIB: continue DAPT with cardiology advice if stents present
• Major bleed: suspend P2Y12 inhibitor and continue aspirin therapy.
• Variceal UGIB: stop all antiplatelets; continue aspirin if needed for secondary prevention
• Suspend all anticoagulants
• Reverse warfarin with FFP, Vit K, or PCC
• Consider Andexanet alfa for life-threatening UGIB on apixaban/rivaroxaban
• Do not use tranexamic acid in UGIB
Pharmacological management:
• Prokinetics (erythromycin, metoclopramide) improve mucosal view
• Routine pre-endoscopy PPIs not recommended
• Start prophylactic antibiotics on admission if variceal bleed suspected
• Start vasoactive drugs (Terlipressin, Somatostatin, Octreotide) within 24h; continue 2–5 days
Timing of Endoscopy:
• Non-variceal UGIB: within 24 hours
• Variceal UGIB: within 12-24 hours
Non-variceal UGIB:
• Consider RDI mode for better visualisation
• Conventional: Adrenaline, thermal, clips (Forrest 1a–2b)
• Adjuncts: Hemospray, Endoclot, Nexpowder, PuraStat
• Advanced: Ovesco, Padlock, haemostatic forceps, Doppler, suturing (Apollo)
Variceal UGIB:
• Band ligation, sclerotherapy, EUS-guided intervention
• If failed: bridge with tamponade (Blakemore tube, Danis stent)
Non-variceal UGIB:
• Feed early if low risk; wait ≥48h if high risk
• PPIs for 72h recommended
• Vonoprazan ≈ PPI efficacy
• H. pylori: Treat per resistance, confirm eradication
Variceal UGIB:
• Restart feeding as soon as possible
• PPIs not routine unless indicated
• NSBB + EVL = 1st line for prevention
• TIPS if bleeding recurs despite therapy or with recurrent ascites
Resumption of anti-thrombotics:
• Antiplatelets:
◦ Stop aspirin if used 1ry prevention
◦ Restart aspirin for 2ry prevention once stable
◦ Restart P2Y12 ≤5 days if indicated
• Anticoagulants:
◦ Low risk: resume ≤7 days
◦ High risk: resume ≤3 days with heparin bridging
Rebleeding Management:
Non-variceal UGIB:
• Second look endoscopy
• If failed, TAE is recommended
• If TAE fails/unavailable, surgery is recommended
Variceal UGIB:
• Interventional radiology: TIPS, BRTO, BATO

Figure 4 Proposed management summary of acute upper gastrointestinal bleeding (AUGIB). ABCDE, airway, breathing, circulation, disability, exposure; BATO, balloon-occluded antegrade transvenous obliteration; BRTO, balloon-occluded retrograde transvenous obliteration; BSG, British Society of Gastroenterology; DAPT, dual antiplatelet therapy; EUS, endoscopic ultrasound; EVL, endoscopic variceal ligation; FBC, full blood count; FFP, fresh frozen plasma; GBS, Glasgow-Blatchford Score; Hb, haemoglobin; INR, international normalised ratio; NEWS, National Early Warning Score; NSBBs, Non-Selective Beta-Blockers; NVUGIB, non-variceal upper gastrointestinal bleeding; P2Y12 inhibitors, class of antiplatelet medications (e.g., clopidogrel); PCC, prothrombin complex concentrate; PPIs, proton pump inhibitors; PT, prothrombin time; TAE, transarterial embolisation; TIPS, transjugular intrahepatic portosystemic shunt; U&Es, urea and electrolytes; UGIB, upper gastrointestinal bleeding; VUGIB, variceal upper gastrointestinal bleeding.

(Child-Pugh B/C, acute variceal bleeding, beta-blocker discontinuation).[110] Patients receiving EVL should also be booked for endoscopic follow-up within 2–4 weeks for further band ligation.

Place of care

Intuitively, AUGIB patients fare better in specialist gastroenterology wards, supported by a retrospective study showing higher survival than in general wards.[101] However, guidance remains weak due to limited high-quality evidence.

Management of rebleeding

A 'rebleeding plan' should be clearly defined in all AUGIB endoscopy reports.[13] Repeat endoscopy is usually preferred, to attempt salvage haemostasis

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using advanced modalities such as cap-mounted clips, contact thermal therapy or haemostatic powders. If rebleeding persists or the endoscopic therapy is not possible, interventional radiology with transcatheter arterial embolisation should be considered, with surgery reserved as an emergent option (table 2).

For rebleeding varices, temporary tamponade using a Sengstaken–Blakemore tube or Danis stent can provide bridging haemostasis while arranging definitive treatment. TIPS is the treatment of choice for recurrent oesophageal variceal bleeding and should also be considered pre-emptively in high-risk cirrhotic patients. For gastric varices, additional transvenous obliteration techniques may be considered. Retrograde approaches access the gastrorenal or portosystemic shunt from the systemic circulation and include balloon-occluded retrograde transvenous obliteration (BRTO) of a lienorenal shunt, plug-assisted retrograde transvenous obliteration and coil-assisted retrograde transvenous obliteration. Antegrade techniques access the varices via the portal system, either through percutaneous transhepatic obliteration or via trans-TIPS obliteration. Importantly, an RCT demonstrated that BRTO significantly reduced gastric variceal rebleeding compared with endoscopic cyanoacrylate injection (p=0.024), with similar survival and complication rates, but with fewer hospitalisations and lower costs.[111]

Quality assurance

Evidence-based AUGIB guidelines support audit of care quality and timely service delivery. The UK Joint Advisory Group on Gastrointestinal Endoscopy (JAG) requires UK endoscopy units to audit against National Institute for Health and Clinical Excellence (NICE) 2012 standards, including ensuring >75% of AUGIB patients receive endoscopy within 24 hours. A BSG-led care bundle aims to improve early management,[13] yet the 2022 UK audit found it used in only 43% of hospitals. Key care deficiencies included lack of risk stratification (40%), and suboptimal use of antibiotics (44%), terlipressin (49%), and restrictive transfusion strategies (57%). While 92% had out of hours endoscopy access, only 44% offered 24/7 interventional radiology.[2] Shortfalls in training will be addressed via national AUGIB courses and JAG certification,[112] with future plans to improve endoscopic outcome reporting via the National Endoscopic Database.

Future directions

Key areas for improving AUGIB care include validating AI prediction tools, avoiding unnecessary endoscopy, for example, with telemetric capsules, individualising antithrombotic resumption timing and salvage endoscopic management. Delivery of structured AUGIB training is important to ensure that all endoscopists are equipped with non-technical and technical skills to manage basic therapeutic modalities, in addition to emerging technologies. Ongoing challenges include the variable adoption of best practice, limited access to advanced therapies in cost-constrained health systems and logistics for training and upskilling.

DISCUSSION

Since 2020, there have been advances in AUGIB research, evidenced by the plethora of high-quality meta-analysis and RCT data showcased within this review, which collectively have potential to reshape AUGIB management (figure 4). Through original research and clinical guidelines, these have identified opportunities in the domains of pre-endoscopic therapy, risk stratification, endoscopic innovations, salvage therapies and postendoscopic management. Moreover, advances in medical care, particularly with regard to portal hypertension, have also been pivotal. In addition to guidelines, clinical care bundles have been developed to facilitate quality improvement among frontline clinicians. Some of the emerging research findings are innovative and challenge long-established paradigms, for example, oral/bolus versus continuous PPI infusion, re-evaluation of antibiotics in variceal bleeding and the prospect of continuous terlipressin versus bolus infusion. Growing data also support the role of haemostatic powders as primary treatment in NVUGIB, PCABs as an alternative to PPIs, telemetric capsules for triaging AUGIB and data in support of iron supplementation. Addressing strategies to embed best practice measures and latest research is essential to ensure high-quality care to improve AUGIB outcomes globally.

CONCLUSION

AUGIB remains a common gastroenterological emergency with high mortality. Recent advances in resuscitation, risk assessment, pharmacotherapy and endoscopic techniques have improved management outcomes. This review synthesises current evidence and international guidelines to support best practices in AUGIB management.

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